

REMARKS

Claims 1-33 are pending. Claims 34-49 have been canceled. Claims 1, 3, 8-12, 21-23, and 26-28 have been amended. Support for the amendments may be found throughout the specification (see, e.g., page 5, lines 22-24; page 8, line 30 to page 9, line 2; page 9, lines 20-22; and page 12, lines 12-20 of the specification).

Rejection under 35 U.S.C. § 102(b)

The Examiner rejected claims 1, 3-9, 11, 13, 15-19 and 21-33 under 35 U.S.C § 102(b) as being anticipated by U.S. Patent No. 5,547,748 to Ruoff et al. ("Ruoff") (see page 2 of the Office Action). Claims 1, 11, 21 and 27 are independent. Claims 1, 3, 8, 9, 11, and 21-23 have been amended.

The claims have been amended to indicate that the shell includes a carbon nanotube chemically attached to at least a portion of a surface of the core (independent claims 1 and 11), or substantially densely-packed carbon nanotubes (independent claims 21 and 27). In light of the amendment, Applicants believe that portions of Ruoff discussing "nested fullerenes" encapsulating a metal carbide do not anticipate the claims.

In Fig. 9 and col. 10 lines 12-47, Ruoff discusses certain "spiny-type" structures. Ruoff describes this material as including carbon nanotubes; however, Ruoff does not provide adequate evidence to draw this conclusion. See the Declaration of John B. Vander Sande, attached as Appendix A ("Declaration"). Because the disclosure of Ruoff provides insufficient evidence that the spiny-type structures include carbon nanotubes, Ruoff fails to enable a person of ordinary skill in the art to make a particle including a core and a shell, the core including a metal carbide and the shell including a carbon nanotube chemically attached to at least a portion of a surface of the core, or a particle including substantially densely-packed carbon nanotubes. References that are not enabling cannot support an anticipation rejection. Applicants therefore respectfully ask the Examiner to reconsider and withdraw the rejection.

Rejections under 35 U.S.C. § 103(a)

Ruoff in view of Ma

The Examiner rejected claims 2, 14 and 20 under 35 U.S.C § 103(a) as being unpatentable over Ruoff in view of Ma et al., "Processing and properties of carbon nanotubes-nano-SiC ceramic," *Journal of Materials Science* 1998, 33, 5243-5246 ("Ma") (see page 3 of the Office Action). Claims 2, 14 and 20 depend from independent claim 1.

Claim 1 relates to a composition including a particle including a core and a shell, the core including a metal carbide and the shell including a carbon nanotube chemically attached to at least a portion of a surface of the core.

As discussed above, Ruoff does not disclose a particle including a core including a metal carbide and a shell including a carbon nanotube chemically attached to the core. Ma does not remedy this defect. Ma does not disclose a particle including a core including a metal carbide and a shell including a carbon nanotube chemically attached to the core. Instead, Ma describes a hot-pressed composite of a mixture of silicon carbide and carbon nanotube powders (see Ma at paragraph 3.1, page 5243, and paragraph 3.4, page 5245). In Ma, the carbon nanotubes are dispersed throughout the silicon carbide powders (see Ma at paragraph 3.1, page 5243).

Thus, neither Ruoff, Ma, nor their combination teaches or suggests all the elements of claim 1. Accordingly, claims 2, 14 and 20 are patentable over Ruoff in view of Ma.

Ruoff

The Examiner rejected claims 10, 12 and 26 under 35 U.S.C § 103(a) as being unpatentable over Ruoff (see page 4 of the Office Action). Claims 10, 12 and 26 depend from independent claim 1 or 11.

As discussed above, Ruoff does not teach or suggest all elements of claim 1 or claim 11. Thus, Ruoff does not teach or suggest all elements of claims 10, 12 and 26. Accordingly claims 10, 12 and 26 are patentable over Ruoff. Applicants respectfully request reconsideration and withdrawal of this rejection.

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CONCLUSION

Applicants ask that the claims be allowed. Should any fees be required by the present Reply, the Commissioner is hereby authorized to charge Deposit Account 19-4293.

Respectfully submitted,

Date: 12-15-08



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